# Energy Savers Program

*targets significant energy savings for*

## Queensland Cotton Farms

POTENTIAL SOLUTION

AVERAGE ENERGY SAVINGS 40%

## Key facts

**Farm / Industry**

Cotton

**Product**

Cotton

**Location**

Queensland

**Case study focus**

Industry and Technology

**Solution**

Install solar systems, efficient pumps and new irrigation infrastructure


## Summary

The Energy Savers program aims to assist farmers to reduce energy costs by supporting the accelerated adoption of improvements in on-farm energy use. This case study summarises the outcomes from audits conducted on 8 Queensland Cotton farms.

Collectively the total energy consumption consumed from the measured areas on the eight cotton farms was 886,171kWh at an annual cost of $239,405, resulting in emissions of 718 tonnes of $CO_2$-*e*.


## Opportunities

The main opportunities identified on Cotton farms include:

- **Pumping and Irrigation**- Savings from Variable Speed Drive installation, pump replacements and maintenance. Changes to irrigation design and automation.
- **Lighting and General**- Replacement and retrofitting of lights with LEDs, infrastructure, and general changes.
- **Solar Systems**- Ranging in size from 5-100kW systems

**Table 1. Technology Recommendations and Savings in the Cotton Industry.**

| Recommendation | Total | Energy Savings (kWh) | Cost Savings ($) | Capital Cost ($) | Average Payback (Years) | Emission Reduction ($CO_2$-e) |
|---|---|---|---|---|---|---|
| **Pumping and Irrigation Upgrades** | 11 | 154,415 | 32,282 | 177,610 | 6.6 | 125 |
| **Lighting and General** | 1 | N/A | 1,000 | 1,000 | 0.4 | N/A |
| **Solar Systems** | 13 | 198,325 | 71,707 | 309,630 | 3.9 | 161 |
| **Total** | 25 | 352,740 | 106,589 | 488,240 | 3.6 | 286 |
| **Total Recommendations** | 665 | 7,459,015 | 2,817,342 | 12,784,670 | 6.85 | 6,042 |


The Energy Savers Plus Program Extension is funded by the Queensland Department of Energy and Public Works.


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COTTON AUSTRALIA

Table 1 highlights that potential energy savings of 352,740kWh were discovered from the audit process.

Cost savings of $106,589 and an estimated 286 tonnes of $CO_2$-e could be removed per annum. At a capital cost of $488,240 the average payback was 3.6 years.

Additional value adding from the energy audits showed how an increase in water delivery, could increase production and profit with a reduction of energy consumed per unit of output.

**Table 2. Pre and Post Audit Metrics.**

| Metric | Pre-Audits | Post-Audits | Reduction (%) |
|---|---|---|---|
| **Energy Consumption (kWh)** | 886,171 | 533,431 | 40 |
| **Energy Costs ($)** | 239,405 | 132,816 | 45 |
| **Emissions ($CO_2$-*e*)** | 718 | 423 | 40 |

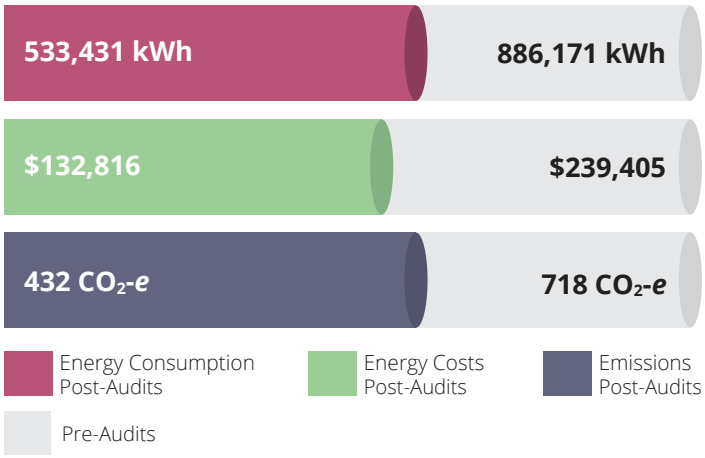
As installation of the recommendations is made within the industry, measurement and verification will be undertaken, and case studies will be updated to include the actual energy savings.

## Energy Audits for your Business

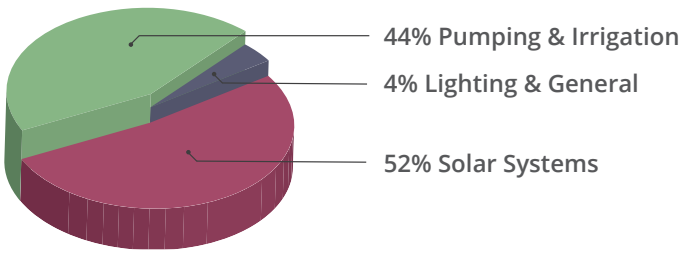
An energy audit is a great way for a business to identify the most effective way to cut costs, reduce emissions and boost productivity.

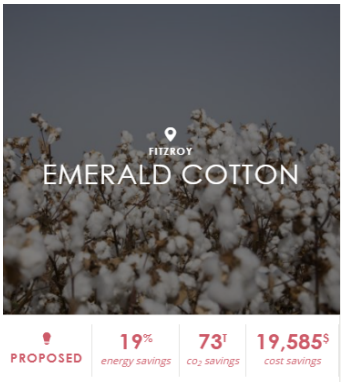
See other case studies including sector case studies and technology case studies at the website: www.qff.org.au/newsroom/case-studies/

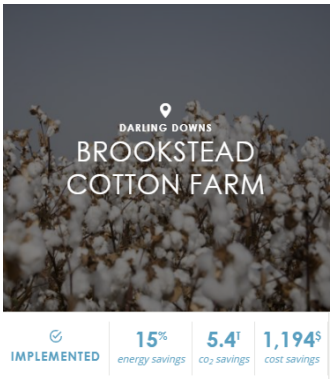
**Graph 1: Energy Savings Pre vs Post Audits**




**Graph 2: Energy Saving Opportunities in cotton**




**Case studies** | To see how other agriculture businesses are saving energy and costs, go to **www.qff.org.au/energysavers**